

WHAT IS CLAIMED IS:

1. An apparatus for reading an image and producing electronic data representing the image, the apparatus comprising:

(a) a carrier for receiving and supporting an image, and conveying the image along a path of travel;

(b) a light source disposed along the path of travel and operable for irradiating the image with visible light and non-visible light;

(c) an optical system disposed along the path of travel for collecting light after it has been irradiated upon the image from the light source, at least a portion of the optical system being movably mounted for movement back and forth along the path of travel; and

(d) a line sensor system in optical communication with the optical system, which receives light collected by the optical system and produces electronic data in accordance with the light received.

2. The apparatus of Claim 1, further comprising a drive assembly supporting said portion of the optical system and at least a portion of the line sensor system, the drive assembly being operable for moving said portion of the optical system and said portion of the line sensor system together back and forth along the path of travel.

3. The apparatus of Claim 1, further comprising a drive assembly supporting said portion of the optical system, wherein said portion comprises a mirror oriented for reflecting light after it has been irradiated upon the image from the light source, and the drive

assembly is operable for moving the mirror back and forth along the path of travel.

4. The apparatus of Claim 3, wherein said optical system comprises optical elements optically disposed between the mirror and the line sensor system, with the optical elements and at least a portion of the line sensor system being supported by the drive assembly and moving together with the mirror when the drive assembly is operated.

5. The apparatus of Claim 3, wherein said portion includes an optical assembly optically disposed between the mirror and the line sensor system, the optical assembly being synchronized for movement with the mirror and in the same direction when the mirror is moved, but at a movement rate substantially equal to one-half the movement rate of the mirror for maintaining a substantially constant optical path length between the mirror and the line sensor system.

6. The apparatus of Claim 1, further comprising first and second filters movably mounted so as to be selectively insertable between the light source and the line sensor system, one of the filters being of the type that substantially transmits only visible light therethrough, and the other filter being of the type that substantially transmits only non-visible light therethrough.

7. The apparatus of Claim 1, wherein the light source is operable for separately emitting visible light and non-visible light.

8. The apparatus of Claim 7, wherein the light source includes a light emitting diode.

9. The apparatus of Claim 1, wherein the light source includes a light guide for directing irradiation to a limited section of the image, the light guide being mounted for movement substantially synchronously with said portion of the optical system.

10. An apparatus for reading an image and producing electronic data representing the image, the apparatus comprising:

(a) a carrier for receiving and supporting an image, and conveying the image along a path of travel;

(b) a light source disposed along the path of travel and operable for irradiating the image with first and second types of light;

(c) an optical system disposed along the path of travel for collecting and transmitting light after it has been irradiated upon the image from the light source, a least a portion of the optical system being movably mounted for motorized movement back and forth along the path of travel;

(d) a line sensor system optically connected to the optical system, which receives light collected by the optical system and produces electronic data in accordance with the light received; and

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(e) a control system electronically connected to, and controlling, the carrier, light source, optical system, and line sensor system, the control system being operable to control the light source to irradiate the image separately with the first and second types of light, receive electronic data produced by the line sensor after irradiation by each type of light by moving said portion of the optical system back and forth along the path of travel, and correct data produced by irradiation with one type of light, based on data produced by irradiation with the other type of light.

11. An image reading apparatus which reads, by using visible light for image reading and non-visible light for detecting inappropriate pixels, a frame image recorded on an image frame of an original, and, based on a position of an inappropriate pixel which position is obtained by irradiating the non-visible light for detecting inappropriate pixels, corrects the image data of the inappropriate pixel, said image reading apparatus comprising:

an irradiation section for irradiating onto the original the visible light for image reading and the non-visible light for detecting inappropriate pixels;

a line sensor which reads image information in lines along a main scanning direction by light which is one of transmitted through and reflected by the image frame being made incident on said line sensor; and

a sub-scanning section for, while the original is stationary, moving, in a sub-scanning direction, a reading position of the image frame to be read by said line sensor.

12. An image reading apparatus according to claim 11, wherein said sub-scanning section moves at least said line sensor in the sub-scanning direction.

13. An image reading apparatus according to claim 11, further comprising a mirror which deflects the light which is one of transmitted through and reflected by the image frame so that the light is made incident on said line sensor, wherein said sub-scanning section moves said mirror in the sub-scanning direction.

14. An image reading apparatus according to claim 13, wherein said sub-scanning section integrally moves, in the sub-scanning direction, said mirror, said line sensor, and optical elements disposed between said mirror and said line sensor.

15. An image reading apparatus according to claim 13, wherein said sub-scanning section includes an optical path length adjusting section for maintaining an optical path length constant even when the positional relationship between said mirror and said line sensor is changed due to the movement of said mirror.

16. An image reading apparatus according to claim 11, wherein said irradiation section includes:

a light source which simultaneously emits visible light for image reading and non-visible light for detecting inappropriate pixels; and

a filter switching section for selectively inserting one of at least two types of filters between the light source and the line sensor, said at least two types of filters being at least one filter which transmits only visible light and at least one filter which transmits only non-visible light.

17. An image reading apparatus according to claim 11, wherein said irradiation section includes a light source which separately emits at least visible light for image reading and non-visible light for detecting inappropriate pixels.

18. An image reading apparatus according to claim 17, wherein the light source is a light emitting diode.

19. An image reading apparatus according to claim 11, wherein said irradiation section irradiates light only onto the reading position of the image frame and moves an irradiation position in the sub-scanning direction synchronously with movement of the reading position by said sub-scanning section.